

A Guide to NAS-SYS

Listing of Program 5, continued

```

0010 ;PROGRAM 5
0020 ;
2D00    0030          ORG 2D00H
0040 ;
0050 ;NAS-SYS subroutine numbers.
2D00 0060 0060 ARGS EQU 60H
2D00 0068 0070 B2HEX EQU 68H
2D00 006A 0080 CRLF EQU 6AH
2D00 0063 0090 INLIN EQU 63H
2D00 0028 0100 PRS EQU 28H
2D00 0079 0110 RLIN EQU 79H
2D00 0066 0120 TBCD3 EQU 66H
2D00 006C 0130 TX1 EQU 6CH
0140 ;
0150 ;NAS-SYS memory locations.
2D00 0C0B 0160 ARGN EQU 0C0BH
2D00 0C0C 0170 ARG1 EQU 0COCH
2D00 0C0E 0180 ARG2 EQU 0COEH
2D00 0C10 0190 ARG3 EQU 0C10H
2D00 0C12 0200 ARG4 EQU 0C12H
2D00 0C14 0210 ARG5 EQU 0C14H
0220 ;
0230 ;
2D00 DF63 0240 START SCAL INLIN ;Get an input line.
2D02 DF79 0250 SCAL RLIN ;Get arguments from line.
2D04 EF   0260 RST PRS
2D05 28415247 0270 DEFNM /(ARGN)=/
4E293D
2D0C 00   0280 DEFB 0
2D0D 3A0B0C 0290 LD A,(ARGN) ;Number of arguments in
2D10 DF68   0300 SCAL B2HEX ;line is displayed.
2D12 DF6A   0310 SCAL CRLF
0320 ;
2D14 EF   0330 RST PRS
2D15 28415247 0340 DEFNM /(ARG1)=/
31293D
2D1C 00   0350 DEFB 0
2D1D 2A0C0C 0360 LD HL,(ARG1) ;Content of memory
2D20 DF66   0370 SCAL TBCD3 ;location ARG1 displayed.
2D22 DF6A   0380 SCAL CRLF
0390 ;
2D24 EF   0400 RST PRS
2D25 28415247 0410 DEFNM /(ARG2)=/
32293D
2D2C 00   0420 DEFB 0
2D2D 2A0E0C 0430 LD HL,(ARG2) ;Content of memory location
2D30 DF66   0440 SCAL TBCD3 ;ARG2 is displayed.
2D32 DF6A   0450 SCAL CRLF
0460 ;

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Listing of Program 5, continued

2D34 EF 0470	RST PRS
2D35 28415247 0480	DEFM /(ARG3)=/
33293D	
2D3C 00 0490	DEFB 0
2D3D 2A100C 0500	LD HL,(ARG3) ;Content of memory
2D40 DF66 0510	SCAL TBCD3 ;location ARG3 displayed.
2D42 DF6A 0520	SCAL CRLF
0530 ;	
2D44 EF 0540	RST PRS
2D45 28415247 0550	DEFM /(ARG4)=/
34293D	
2D4C 00 0560	DEFB 0
2D4D 2A120C 0570	LD HL,(ARG4) ;Content of memory location
2D50 DF66 0580	SCAL TBCD3 ;ARG4 is displayed.
2D52 DF6A 0590	SCAL CRLF
0600 ;	
2D54 DF60 0610	SCAL ARGS ;First 3 args to HL,DE,BC.
2D56 C5 0620	PUSH BC
2D57 DF6C 0630	SCAL TX1 ;Display HL DE.
2D59 E1 0640	POP HL
2D5A DF66 0650	SCAL TBCD3 ;Display content of BC.
0660 ;	
2D5C DF6A 0670	SCAL CRLF
2D5E 18A0 0680	JR START

4.6 PROGRAM 6

This example is actually two short programs. The first, which is lines 110 to 150, and which is executed from location 2D00, shows the use of FFLP. Register A is loaded with the bit pattern 00100100 and consequently bits 2 and 5 of output port 0 are pulsed. These are the only bits of the port which are not dedicated to driving the keyboard hardware.) The signals produced at PL3 pins 6 and 8 with the Nascom clock at 4 MHz are both:

5us
135us

The second program, which is lines 230 to 250, simply turns led2 on and off using MFLP. TDEL is used to reduce the frequency of the on/off cycle so that it can be visually observed. It is executed from location 2D10.

Listing of Program 6

```

0010 ;PROGRAM 6
0020 ;
2D00    0030      ORG 2D00H
0040 ;
0050 ;
0060 ;NAS-SYS routine numbers
2D00 005E 0070 FFLP EQU 5EH
2D00 005F 0080 MFLP EQU 5FH
2D00 005D 0090 TDEL EQU 5DH
0100 ;
0110 ;Pulse bits 2 and 5 of PORT 0.
2D00 0624 0120 LD B,24H ;Bits 2 and 5 to pulse.
2D02 78   0130 LOOP1 LD A,B
2D03 DF5E 0140 SCAL FFLP
2D05 18FB 0150 JR LOOP1
0160 ;
0170 ;
0180 ;
2D10    0190      ORG 2D10H
0200 ;
0210 ;Toggle the cassette led.
0220 ;
2D10 DF5F 0230 LOOP2 SCAL MFLP
2D12 DF5D 0240 SCAL TDEL
2D14 18FA 0250 JR LOOP2

```

4.7 PROGRAM 7

This program prompts the user to enter a hexadecimal number of upto four digits, and then uses INLIN and NUM to transfer the number to workspace location NUMV (OC21/2) and the number of digits in the number to location NUMN (OC20).

The input number is read at line 240 using INLIN. The number, which is stored as ASCII codes in video ram locations pointed to by register pair DE, is converted to hexadecimal in workspace location NUMV using NUM, the number of digits being stored in NUMN. The remainder of the program simply displays the contents of NUMV and NUMN.

Listing of Program 7

```

0010 ;PROGRAM 7
2D00    0020      ORG 2D00H
        0030 ;
        0040 ;
        0050 ;NAS-SYS routine numbers.
2D00 0068 0060 B2HEX EQU 68H
2D00 0063 0070 INLIN EQU 63H
2D00 0064 0080 NUM   EQU 64H
2D00 0066 0090 TBCD3 EQU 66H
2D00 0028 0100 PRS   EQU 28H
2D00 0069 0110 SPACE  EQU 69H
        0120 ;
        0130 ;NAS-SYS workspace locations.
2D00 0C21 0140 NUMV   EQU 0C21H
2D00 0C20 0150 NUMN   EQU 0C20H
        0160 ;
        0170 ;
2D00 EF    0180 START  RST  PRS
2D01 456E7465 0190     DEFNM /Enter a hex number, up to 4 digits/
72206120
68657820
6E756D62
65722C75
7020746F
20342064
69676974
73
2D22 0D00 0200     DEFB ODH,0
        0210 ;
        0220 ;
        0230 ;Get an input line.
? 24 DF63 0240     SCAL INLIN
        0250 ;
        0260 ;Convert input from ASCII to hex,
        0270 ; result in NUMV.
2D26 DF64 0280     SCAL NUM
        0290 ;

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Listing of Program 7, continued

2D28	EF	0300	RST PRS
2D29	456E7465	0310	DEFM /Entered number is stored at /
	72656420		
	6E756D62		
	65722069		
	73207374		
	6F726564		
	20617420		
2D45	0D	0320	DEFB 0DH
2D46	6C6F6361	0330	DEFM /location NUMV as /
	74696F6E		
	204E554D		
	56206173		
	20		
2D57	00	0340	DEFB 0
		0350 ;	
		0360 ;Now display.	
2D58	2A210C	0370	LD HL, (NUMV) ;Move result to HL,
2D5B	DF66	0380	SCAL TBCD3 ; and display it.
2D5D	DF69	0390	SCAL SPACE ;One space.
2D5F	3A200C	0400	LD A, (NUMN) ;Number of digits to A.
2D62	DF68	0410	SCAL B2HEX ; and dispaly.
		0420 ;	
2D64	EF	0430	RST PRS
2D65	0D0D0D00	0440	DEFB 0DH, 0DH, 0DH, 0
2D69	1895	0450	JR START

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4.8 PROGRAM 8

This program shows how SCALJ is used to call another routine. The A command is to be called, so the required two arguments are loaded into register pairs HL and DE. The number of the A command, 41H, is transferred to ARG C at lines 150 and 160 and then the A command is called using SCALJ at line 170. The called routine may be any of the commands or routines having numbers from 41H to 7FH.

When executed, the program outputs:

0008 FFFC FA
* NAS-SYS 3 *

Listing of Program 8

```
0010 ;PROGRAM 8
0020 ;
2D00      0030      ORG 2D00H
          0040 ;
          0050 ;NAS-SYS routine numbers.
2D00 005B  0060 MRET EQU 5BH
2D00 005C  0070 SCALJ EQU 5CH
          0080 ;
          0090 ;NAS-SYS workspace
2D00 0C0A  0100 ARGC EQU 0C0AH
          0110 ;
          0120 ;
2D00 210600 0130 LD HL,6      ;Arguments
2D03 110200 0140 LD DE,2      ; for
2D06 3E41   0150 LD A,"A"    ; Arithmetic
2D08 320A0C 0160 LD (ARGC),A  ; command,
2D0B DF5C   0170 SCAL SCALJ ;called via SCALJ.
          0180 ;
2D0D DF5B   0190 SCAL MRET
```